The Financial Mathematics and Computation Cluster (FMC) was established in 2009. FMC is funded by Science Foundation Ireland and Industry. Further details about FMC are in the appendix and http://www.fmc-cluster.org/

Note: Databases are located in standalone computers in the Financial Data room.

Center for Research in Security Prices (CRSP) Database

The CRSP database contains end-of-day and month-end equity data on primary listings and cross-listings for the main US stock exchanges, along with basic market indices. CRSP Contains various data on US securities from NYSE, AMEX, and Nasdaq. Both monthly and daily data are included for each index: NYSE monthly, Dec. 1925 - date ; NYSE daily - date, July 1962 - date ; AMEX monthly, July 1962 - date; AMEX daily, July 1962 - date; Nasdaq monthly and daily, Dec. 1972 – date. CRSP data includes prices, returns, volume, shares outstanding and dividends. Coverage also includes dates of dividend distributions and stock splits.

Data is updated every six months, allowing for an up-to-date offering for the purposes of academic research.

Getting started with CRSP

You can access CRSP on the desktop icon of the CRSP-dedicated PC. A name tag is allocated to every CPU to allow for identification of the database in question. The subscribed CRSP offering includes time-series data, stock data and indices data. Time Series Access allows for the most comprehensive and flexible offering as compared to Stock Data and Indices Data.
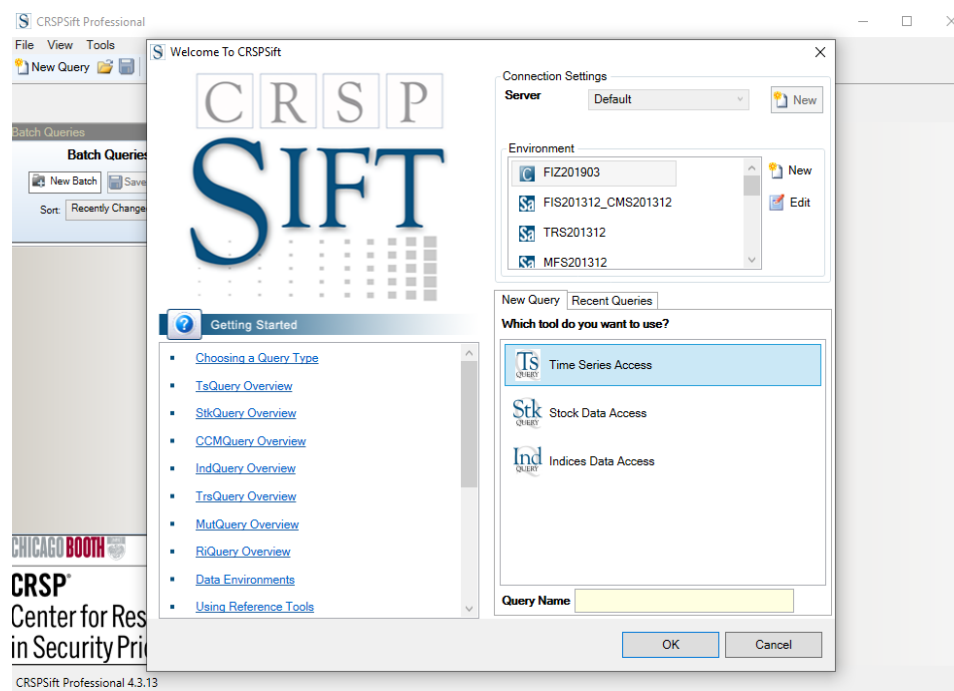
Upon selecting "Time Series Access", the user is faced with four relevant tabs: Entries, Data Items, Date and Layout. "Entries" allows for the selection of the required stock(s). CRSP allows for four types of IDs: PERMNO, PERMCO, CUSIP and TICKER, with PERMNO being the unique security-level identification assigned by CRSP, and is the standard ID used.
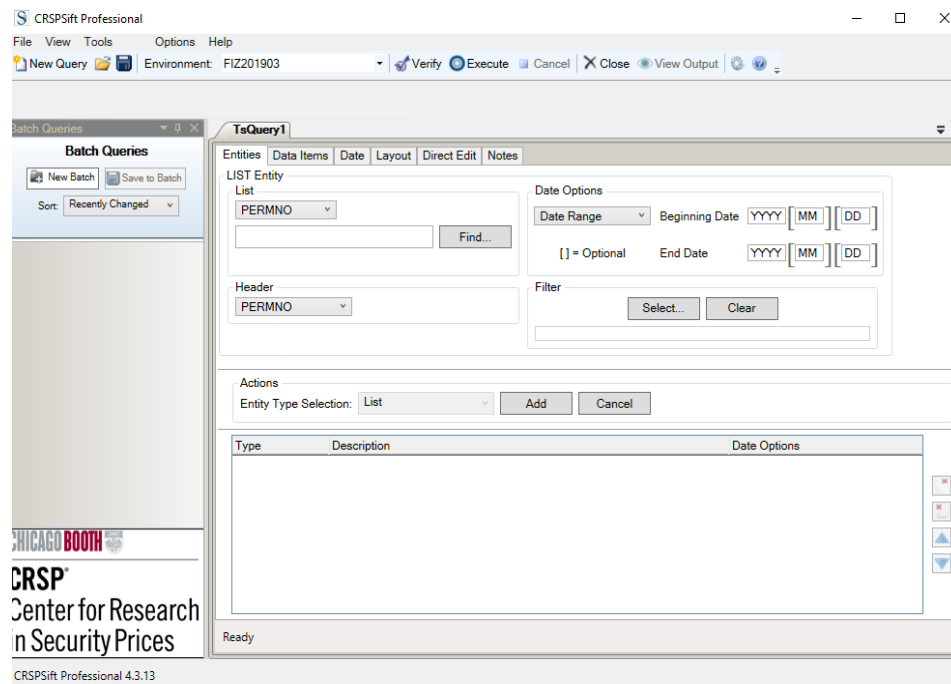
The "Data Items" tab allows you to select the required data and frequency for the securities of choice.
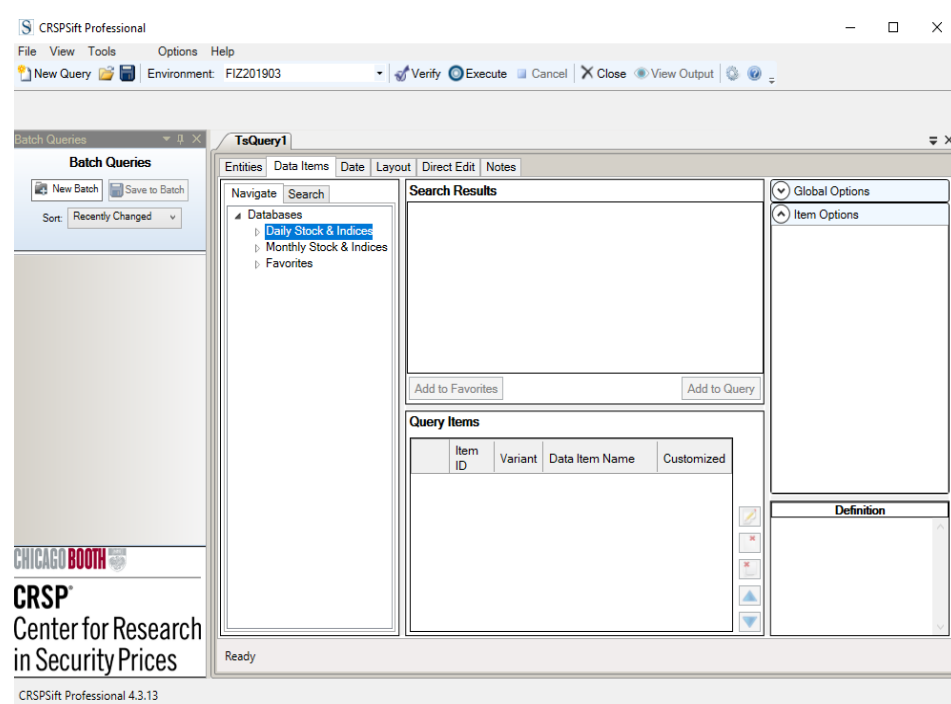
The "Date" tab allows for the selection of the sample period in question, with a "Start Date" and an "End Date" that is decided on by the end user.

Finally, the "Layout" tab provides the end-user the option to decide on the format of the selected data. Data can be saved and downloaded as .txt, .xls, .mat and SAS files. The "Location and File Name" allows the user to select the location of the file to download.

Once the end-user has decided on the Entries, Data Items, Date and Layout, they can click on
"Verify" to verify that no errors have been made in data selection, followed by "Execute" to save and download the data into the Location of choice.

For more detailed guidance, please refer to the CRSP online user guide provided in the References section.

References:

https://www.crsp.org/wp-content/uploads/2023/08/Research-User-Guide.pdf

Industry

FMC^2 has developed successful research collaborations with international and domestic financial services companies and organisations. These help ensure the industry relevance of FMC^2's research.

FMC^2 works with multiple external partners including Bank of Ireland, Deloitte Ireland, Citibank Europe, The Institute of Banking, Avolon, AerCap, GECAS, SNECMA, SMBC Aviation Capital and KPMG Ireland.

The formal collaboration between this research cluster and the private sector leads creates a benefit-in-kind situation where company sponsorship creates funding for research projects. In turn the companies benefit from research expertise from FMC^2 members and access to a pipeline of trained quality researchers.

Who are we?

The academic principal investigators and funded investigators involved are:
John Cotter (Director, UCD)
Don Bredin (UCD)
Gregory Connor (Maynooth University)
Paolo Guasoni (DCU)
Julie Byrne (UCD)
Thomas Conlon (UCD)
Cal Muckley (UCD)
Conall O'Sullivan (UCD)
The cluster supports a research cluster manager and a team of postdoc and PhD researchers based at UCD, DCU and Maynooth University.
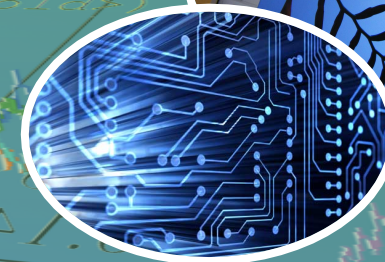
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FMC^2
Financial Mathematics and
Computation Research Cluster

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sfi
Science
Foundation
Ireland

Financial Mathematics and Computation Cluster (FMC²)

FMC² is a *research collaboration* between Industry, University College Dublin, Dublin City University and Maynooth University. This research group brings together complementary expertise in *financial mathematics, financial economics and computational finance* to create a holistic research programme in asset and risk management.

In addition to providing support for the innovation activities of Irish-based international financial companies, a pivotal outcome of the activities of FMC² is the creation of a supply of highly skilled personnel, trained postdoctoral researchers and PhD graduates, with world-class quantitative modelling skills who will support the future growth of financial service exports.

FMC² is funded by Science Foundation Ireland's Strategic Partnership programme. The object of this programme is to create partnerships between academia and industry in order to address crucial research questions, and to support the growth of research and development capacity in companies located in Ireland.

The Vision

The objective of FMC² is to create a globally recognised research centre that will provide a critical underpinning for the future development of the international financial services sector in Ireland.

www.fmc-cluster.org

VAR
- Factor Modelling
- Dynamic Factor Structure of European Security Market Return
- Risk Measures, Connectivity and Impact on the Real Economy

Valuation
- Pricing Real Assets – Finalization, Policy and Market Implications
- Aircraft Finance and Leasing
- Energy prices and the Impact on Investment Decisions
- Valuation of contracts with embedded inflation linked options

Risk
- Operational Risk – Measurement and Mitigation
- Measuring and mitigating operational risks in financial institutions
- Operational Risk in LIBOR and other Benchmark Markets
- Rogue Trading and Banking